JET PROPULSION LABORATORY **INTEROFFICE MEMORANDUM**
May 1, 1998

TO: Distribution

FROM: L. Deutsch and J. Statman

SUBJECT: Call for FY99 Telecommunications and Mission Operations Technology and Development Program Task Proposals

Introduction

The Telecommunications and Mission Operations Technology (TMOT) and Engineering Program Offices are soliciting proposals for technology and development tasks in the areas of space communications and mission operations. This memorandum describes formats and mechanisms for submission of proposals, and selection criteria. *The deadline for submission of proposals is June 1, 1998.* Additional information and updates will be posted at
`http://deepspace1.jpl.nasa.gov/technology/private/tmot_internal.html`
under the "FY99 TMOD Technology and Engineering Call for Proposals" category.

The mission of the TMO Technology program is to identify, develop, and demonstrate new technologies and innovative approaches to meeting the communications, navigation, mission operations, and science needs of present and future TMO customers at minimum end-to-end cost to NASA. The TMOT program is funded through the NASA Space Operations Management Office (SOMO) and by Code S. The mission of the TMO Engineering Office's development program is to implement continuous improvement in the services provided by TMOD.

The ultimate customers of the programs are the NASA Enterprises which will benefit from improved, lower-cost TMOD services. Specific customers include the TMOD Plans and Commitments, Engineering, and Operations offices and specific flight projects and flight programs.

The scope of both programs spans the end-to-end link between spacecraft instruments and science users, and between spacecraft systems and spacecraft engineering teams. The distinction between the programs is in the answers to two questions: the technical risk, and the understanding of the business case. Tasks which carry mid-to-high technical risk, or for which the business case is not well understood, are done in the TMOT Program. Tasks which carry low risk, and for which the business case is understood, are done in the TMO Engineering Office.

The TMOT program is divided into two areas: Mission Services, managed by Peter Shames, and Data Services, managed by Laif Swanson. The list of work areas and their managers is at the end of this memo. The TMOD Engineering Office is divided into service systems; the service systems and their managers are also listed at the end of this memo.

Multi-year efforts may be proposed; clear task deliverables and funding requirements should be defined for each fiscal year. Funding commitments beyond FY99 will be re-evaluated at next year's planning cycle, based on FY99 progress. There are no specific restrictions on the budget for proposed tasks, but cost of the proposed task and the subsequent cost-benefits will be critical considerations in task selection.

Budget Envelopes

1. FY99 funding for the TMOT program includes roughly $13M from SOMO and $1M from Code S.

2. FY99 funding for the Engineering office's development program is $1M from Code S. This office intends to continue the multi-year tasks unless there are major deficiencies in their performance.

3. There is no funding particularly identified for the SOMO-funded continuous improvement task in the TMO Engineering Office. Proposers are encouraged to contact SSM's directly to review feasibility of funding as part of the SSM's overall effort.

4. Current tasks range from small studies with budgets corresponding to a few work months of effort, up to large breadboard and flight demonstration efforts with multi-year budgets exceeding $1M.

Selection Criteria

A variety of considerations will be taken into account in evaluating and prioritizing tasks. These criteria include:

- Customer advocacy
- Cost and subsequent cost/performance benefits
- Likelihood of ultimate infusion into operational systems
- Clear definition of task objective, goals, and deliverables
- Technical merit
- Technology infusion plan and potential cost savings (for TMO Engineering Office only)

Proposers are encouraged to look for opportunities to team across JPL organizational boundaries and with the best elements in industry, academia, and other centers; the strength of such teaming arrangements will be factored into the selection process.

Proposers are encouraged to communicate directly with beneficiaries of the proposed work to develop a clear understanding of customer needs and priorities. Technology developers should establish close and ongoing ties with future users of their technology to understand cost issues and schedule drivers, in order to identify opportunities for cost-effective technology insertion. Proposers also MUST communicate with the relevant work area manager or service system manager before submitting a proposal; proposal submissions which do not include the date of such a conversation will be returned unread.

Proposal Submission Process

All proposals are to be submitted through the web page http://deepspace1.jpl.nasa.gov/technology/private/tmot_internal.html under the "FY99 TMOD Technology and Engineering Call for Proposals" category. Here you will find the the proposal template, which must be used. After the template is filled out, proposals are submitted on-line, at the same url. This is a two step process where the first step is to upload the filled out proposal template and the second step is to fill out the proposal submission form. You will be notified that the proposal has been accepted for submission and supplied with the file name which we will use to refer to it in any future communication.

Proposal Evaluation Process

Proposers should contact the relevant technology work area manager(s) or service system manager as early as possible to align the scope and goals of their proposed task with TMOD needs and to identify opportunities for coordination with other funded or proposed tasks. The work area manager) or service system manager will know the range of funds likely to be awarded in the area, and so can discourage spending time on a proposal which is very unlikely to be funded.

After proposals have been received, the TMOT office will check that each is being considered in the right area. For TMOT proposals, the work area manager will then prioritize the proposed tasks in that work area, and then meet with the Technology Manager to discuss the work and its relevance. All proposers in that work area will be invited to this meeting, as well as relevant TMOD Service System Managers, managers of related technology development programs, and likely customers. Afterwards, the TMO Technology Office will ask for inputs from Service System Managers, other customers, and the Technical Divisions; final priorities and funding decisions will be determined by the TMO Technology Office based on all of these inputs. For proposals to the Engineering Office, there will be a meeting with all the relevant SSM's, the Technology managers, and appropriate customers and technical divisions where ranking and funding will be determined.

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Schedule

May 1	Call for Proposals is distributed
June 1	Proposals due to TMO Technology program office (submitted electronically), with copy to relevant work area manager or system service manager
June 15 - 30	Proposal evaluations and work area negotiations
July 15	Final funding decisions announced

Further Information

Questions and comments should be directed to `chad.edwards@jpl.nasa.gov`, who will oversee the proposal process. Additional background information and updates will be posted at: http://deepspace1.jpl.nasa.gov/technology/private/tmot_internal.html.

Work Areas, Service Systems, and Managers

TMOT Work Areas	Managers
Antenna Systems	David Rochblatt
Optical Communications	Jim Lesh
Spacecraft Radio Systems	Jonathan Perret
DS-T	Nasser Golshan
Low Noise Systems	Javier Bautista
DSS 13 Evolution	Larry Teitelbaum
Network Signal Processing	Norman Lay
Frequency and Timing	John Dick
Atmospheric Propagation	George Resch
In Situ Comm	Polly Estabrook
Ka-Band Experiments	Shervin Shambayati
Communications Systems Analysis	Fabrizio Pollara
Radio Metrics and GPS	Steve Lichten
Science Processing and Visualization	Tom Handley
Navigation	Al Cangahuala
TMOD Automation	Peggy Li
Beacon Mode Operations	Jay Wyatt
Integrated Mission Support	Chet Borden
TMOD Protocols	Leigh Torgerson
Unified Flight & Ground Architecture	Bob Wilson

Engineering Service Systems	Mangers
Telemetry & Command	Susan Kurtik
Navigation & Tracking	Ed Christensen
DSN Science	George Resch
Mission Services and Applications	Ralph Reichert
Instrument Science Services	Tom Handley
Common Services (M&C, networks)	Dean Hardi
Antennas & Microwave	Jeff Osman

Further information about TMOT work areas can be found at
http://deepspace1.jpl.nasa.gov/970/private/tmot_internal.html